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EDB DPP3 Reset Issues Paper Submission – Pat Duignan 20 December 2018

Dear Dane,

This submission is a personal submission, independent of any interested party.

It is provided in the hope that the analysis set out below will assist the Commission in arriving at decisions that are in the best long-run interest of electricity consumers as required by the Commerce Act 1986. It is also in the long-run interest of electricity distribution businesses and their shareholders for the Commission's decisions to take full account of the issues highlighted in this submission. In particular, it is not in the long run interest of shareholders for them to be under any illusions regarding the implications of invoking acceleration of depreciation of exisiting assets based on an increased risk of economic stranding of assets.

The focus of this submission

This submission first suggests the Commission use the DPP3 reset to dispel a widespread misunderstanding regarding the role of the "X-factor" in Part 4 regulation. The misunderstanding is that the X-factor is the way the Commssion sets a productivity improvement target for electricity distribution businesses.

The submission then focusses on three interrelated issues which set the context for the determination of third reset of default price-quality paths (DPP3).

The three issues are:

1. The implications of the provision for the shortening of remaining lives of existing asset resulting in acceleration of depreciation justified by increased risk of economic stranding;

2. The Quality-Price trade-off in electricity distrinbution and the implications for the setting of quality standards; and

3. Are the Price-Quality path incentives sufficiently understood by EDBs to influence EDB's behaviour?

The above matters are discussed in turn below.

The role of the X-factor

In discussions with significant electricity industry participants is is apparent that there is a widespread misunderstanding whereby the Commission's decision regarding the X-factor is interpreted as setting a productivity improvement target. This misunderstanding is not surprising given the Act specifies:

"53P (5) *Subject to subsection (8) [price smoothing], the Commission must set only 1 rate of change per type of regulated goods or services (for example, if the rate of change (x) is 1% in a CPI−x path, 1% must be the rate for all goods or services of that type).*

53P (6) *The rate of change must be based on the long-run average productivity improvement rate achieved by either or both of suppliers in New Zealand, and suppliers in other comparable countries, of the relevant goods or services, using whatever measures of productivity the Commission considers appropriate.*"

It is not surprising that wording "*productivity improvement rate*" suggests to most observers that the x-factor is a productivity improvement target. Therefore many observers are surprised that the X-factor has been set at a negative level. The Issues Paper very briefly addresses this misunderstanding in para 4.18 but a fuller explanation is important to dispel the widespread misunderstanding. I attach a note I prepared on this matter.

The implications of acceleration of depreciation for existing assets

The review of the input methodologies (IMs) introduced a new provision which allows EDBs to apply at a DPP reset for a shortening of the remaining lives of existing assets of up to 15 percent. A 15% shortening will increase the annual depreciation amount for such assets by 17.7% under straight line depreciation, all else being unchanged.

The effect on the revenue cap under DPP3 and thus EDB's prices depends on the value of assets to which the acceleration applies and their remaining lives. The Commission estimates that approval of acceleration would increase the prices for some EDBs by up to 6 percent.

The justification for this provision is that changes in forecasts of demand for distribution capacity (and thus future utilisation of at least some EDB assets) indicate there is now a materially greater probability of economic stranding than when the IMs were first determined in 2010. The issues arising from this justification are discussed below.

(A) Why is the shortening of asset lives limited as a percentage instead of as a number of years?

At first appearances it is odd that the limitation on the shortening of asset lives is specified as a percentage, namely that the adjustment factor can reduce the average asset life to no less than 0.85 of the previous value. If a particular asset has a remaining life of say 7 years how could a reduction of that life to 6 years (0.85 of 7 years) be justified? It seems unlikely that economic stranding would occur within the next 7 years.

I am not in a position to review the detailed discussion during the IM review. The reason for the percentage specification appears, however, to reflect the fact that under the IMs the remaining life of assets is not derived as a weighted average of the lives of specific assets. Instead the value of the remaining lives is calculated as the remaining value of exisiting assets divided by the annual depreciation for a base year. (I understand this is a way of implementing a straight line depreciation.) The 0.85 adjustment limitation relates to the aggregate increase in the annual depreciation charge. That charge can be increased by up to 17.7%.

The above analysis implies that the Commission will need to scrutinise closely the argument advanced in an application for a particular adjustment factor. The justification will depend on the mix of assets of the applicant EDB. Two EDBs could have regulatory asset bases with the same average remaining life but with one having its long remaining life assets weighted towards assets that are unlikely to be economically stranded whereas the other may have its long remaining life assets weighted toward assets that could be stranded.

EDBs applying for a shortening of the average remains life of their existing asset are required to describe any consultation they have conducted regarding the proposal. That consultation should provide detail on the mix of asset lives.

(B) The justification for acceleration implies a reduction in net present value for consumers

The Issues paper states the acceleration of depreciation for exisiting assets is net present value neutral. This is correct for suppliers. The price increase of up to 6 percent will recover the value of the assets over a shorter period. The increase is present value neutral for suppliers, however, since prices will cease to incorporate a depreciation charge for those assets at the end of that shorter period.

From the consumers' perspective, however, the justification for the acceleration is that the new forecast of the demand for services from those assets is that they will cease to be utilised at the end of that shorter period. Previously the Commission was setting prices on the basis that the services provided by those assets would continue to be utilised by consumers for a longer period ie on average 45 years from the time of their installation.

Thus the previous estimate was that consumer would derive benefits, ie services, from those assets for 45 years. The new central estimate is that consumers will cease to derive benefits earlier than 45 years after the installation of those assets where the depreciation charge is now being increased[1]. The basis for the increase is that their remaining life is now up expected to be up to 15% shorter than previously.

The net present value, ie benefit, that consumers can now expect to obtain from those assets is smaller than previously expected. The flow of benefits will end sooner than was earlier expected.[2]

It would be appropriate for the Commssion to qualify statements that the acceleration is "net present value neutral" by acknowledging this is the case for suppliers but not for consumers.

In summary, acceleration is a net present value neutral response for suppliers to the downward revision in the expected economic life of some EDB assets. That, however, does not address the reduction in the net present value consumers can expect to obtain from past investments.

Obviously, the Commission cannot compensate consumers for the effect on them. What the Commission can do is to recognise that, while acceleration is justified as means to reduce the risk of that financial capital will not be maintained, it might be misinterpreted by EDBs as indicating:

- EDBs do not need to review their proposed investments in recognition of the downward revision of expected net benefit for consumers; and

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[1] The justification for acceleration is not valid unless the central estimate of the remaining economic life has reduced. The previous expectation was that the economic life of the assets was equal to their average physical life. There is now an increased probability that the economic life will be shorter than the physical life. By definition there cannot be any offsetting possibility of a longer economic life since the economic life cannot be longer than the physical life. Logically, the central estimate of the economic life is now lower than previously.

[2] The technological changes that economically strand some EDB assets will benefit consumers in the long run. Consumers who depend on older technology provided by a supplier with unconstrained market power to meet their requirements during part of their lifetime and on new technology to meet their requirements later are likely, however, to incur a double set of costs. This is specifically an issue where some consumers can move to a new technology and but a diminishing number of other consumers continue to depend on the older technology where the supplier continues to have significant market power. Electricity consumers moving off-grid as a result of solar panels and batteries would be an example.

- The Commission has created a precedent that it will protect EDBs against the risk of economic stranding.

The increased risk of economic stranding implies some capital expenditure that would under previous expectations, have been beneficial for consumers will no longer be beneficial. (While much of previously planned capital expenditure will still be highly beneficial for consumers, the quality standard issues discussed below demonstrate that some capital expenditure is of marginal net present value beneficial from consumers' perspective.) It would be appropriate for the Commission in the DPP3 determination process to link agreement to accelerate depreciation to a more stringent review of the capital expenditure levels it builds into the maximum allowable revenue path.

The acceleration does not apply to new assets and the Commssion has warned that it cannot be taken for granted that it would be able to provide EDBs with financial capital maintenance under all future scenarios. That signalling should provide EDBs with an incentive to review their proposed capital expenditure and consider revising downwards asset replacement programmes where the risk of economic stranding has increased. Logically, the Commission should expect those EDBs that apply for acceleration will advise what review of capital expenditure plans they have undertaken and the results of their review.

EDB Boards and their shareholders, particularly long term holders, will hopefully recognise that pressing on with high capital expenditure levels without reviewing the benefit to consumers given reduced expections of economic life will be unwise. It is in the interests of EDB shareholders to undertake and publish benefit cost analyses of key components of their capital expenditure plans. Publication of such analyses and consultation on them with interested parties is one way in which EDBs can achieve public recognition of the risks of economic stranding. An informed discussion of the issue reduces, albeit does not eliminate, the risk of public opinion forcing a revision of the regulatory framework at the expense of the EDBs.

The increased risk of economic stranding creates a dilemma for quality standards which are the subject of the next section of this submission. Consumers and long term investors in EDBs would be best served by the Commssion and EDBs using the DPP3 reset as a vehicle for alerting the public and policy-makers to the challenging trade-offs between cost and quality of electricity distribution in the present circumstances. The DPP reset will likely extend beyond the completion of the Electricity Price Review. The review and the DPP3 would best served by the DPP3 reset process including at an early stage a discussion of the trade-off.

The Quality-Price trade-off in electricity distribution

By definition it is in the long run interests of consumers for EDBs to undertake any capital expenditure that improves quality to an extent that the value to consumers of the resulting quality improvement is at least marginal higher than the cost in present value terms. The challenge for the Commission is to identify as best it can (having regard to the DPP cost constraint) the quality standards that would result in EDBs undertaking capital and opex expenditure up to the point where the benefit does marginally exceed the cost.

At present the Commission's analysis of quality standards and the EDB Working Party discussions of such standards do not appear to be framing the issue in the way summarised above except in one specific area. The exception is the proposal that the value of lost load could be the basis of the monetary incentives relating to over or under performance within the tolerance bands.

There are several notable indicators that suggest a substantial real price increase would be required in order to maintain quality standards at the levels achieved historically.

The most compelling evidence in this regard is the Commission decision on the Powerco CPP application. That decision provides for Powerco's revenue cap path to incorporate a capital expenditure provision corresponding to a real price increase of up to 15% over the long term with only a small improvement in quality standards being required to be achieved. If Powerco is eligible to apply for the shortening of the remaining life of its exisiting assets as it transitions off its CPP path then the overall price increase faced by consumers on its networks could be over 20%.

Secondly, during DPP2 so far, seven EDBs have failed to comply with the quality standards once or more times with the standards having been contravened eleven times in total. The Commission comments in the Issues paper (para 3.31.1.) that this level of non-compliance may be due to factors "*within the wider industry such as whether levels of investment in response to aging assets are sufficient to deliver services at a level which consumers demand*". Taken at face value, this observation indicates the Commission contemplates a need to increase the provision for capital expenditure for DPP3 which would result in real price increases all else being unchanged.[3] The Powerco CPP decision suggests that the real increase in prices could be up to 15%.

The Issues paper subsequently acknowledges (para 3.46) that "*It is not necessarily an easy task to understand consumer price-quality preferences, or to translate those preferences into effective and enforceable standards and incentive mechanisms.*"

The Issues paper's reference, in para 3.31.1, to "*services at a level that consumers demand*" presumably reflects the well known observation that consumers often respond to surveys of their quality-price trade-off preferences that they prefer the current level of service rather than paying more for a higher or less for a lower quality level. This type of response – anchoring on the quality level currently being experienced - is not at all surprising in the absence of any information regarding what price changes would be the compatible with targeting a higher or lower quality standard.

The current lack of reliable information and public awareness regarding the quality-price trade-off in electricity distribution creates risks for the Commssion's reputation among the public and for the EDBs and their shareholders in regard to public support for the regulatory framework. Concern regarding electricity prices has resulted in the Electricity Price Review.

Public dissatisfaction could be severe if, soon after the Electricity Price Review is completed, it becomes apparent that consumers face continuing real increases in electricity distribution pricing. The course of events in the UK involving a Conservative government overriding the electricity regulator and legislating price caps and proposing renationalisation illustrates the risks.

It is in the interests of all involved, including EDB shareholders, for the public to be provided with reliable information regarding the Quality-Price trade-off during the Electricity Price Review process, ie early in the DPP3 process. Listed EDBs could play a particular role in this regard since their provision of analysis of the Quality-Price trade-off would have a special credibility since such information would be a public disclosure imposing Company Act obligations regarding accuracy.

Providing the public with Quality-Price trade-off information, would allow individual consumers to arrive at informed conclusions regarding their individual preferences. In general however EDBs cannot deliver different quality standards to different residential electricity consumers. Given that different consumers will have different preferences but only a single or at most a few different

[3] The reduction in the riskfree rate between DPP2 and DPP3 will tend to reduce prices but that is can be expected to reverse in the future.

quality standards can be delivered, the Commission needs specific decision criteria to choose what that standard or set of standards will be. The best practice criteria in such a case have, as their centre piece, a benefit-cost analysis with the cost of monitoring and practicalities being supplementary criteria.

A benefit-cost analysis will unavoidably be subject to uncertainties in regard to the required assumptions. Absent such an analysis, however, the decision will be shaped by vague debates over the weighting of different desirata and most likely will rely on historic precedents thereby being captured by the anchoring process mentioned earlier. The result may well be that quality standards are set that are excessive in terms of the cost of maintaining them compared to the benefits they deliver. The increased uncertainty regarding economic stranding makes such an outcome more probable since maintaining historic quality standards may result in capital being expended on assets which will be economically stranded ie will cease to provide benefits to consumers before the end of their physical life.

Are the Price-quality path incentives sufficiently understood by EDBs to influence EDB's behaviour?

In para 3.7.1 of the Issues paper, the Commission asserts the first contextual issue for the DPP3 reset raised by the Electricity Price Review is "*evaluating whether the effectiveness of the incentives we put in place, including whether they are sufficiently well-understood by EDBs to influence EDB's behaviour*".

This is an intriguing suggestion. On a first consideration it might be seen as very surprising that EDBs might not understand the incentives they face. Shareholders would naturally expect EDB Boards and managements would fully understand the incentives the Commission has put in place since understanding those incentives is vital to maximising returns while complying with the regulatory framework.

Arguably, the Commission's suggestion reflects an appreciation of the complexity of the set of incentives provided in the implementation of building blocks regulation under Part 4 of the Commerce Act. The implementation provides incentives by at least five mechanisms - the WACC uplift, the percentage of capex and opex savings relative to the maximum allowable revenue retained by an EDB, the binding minimum quality standards, the financial penalty/reward resulting from variations in quality achieved within the tolerance band and the relationship between AMP's and the capital expenditure allowance built into the maximum allowable revenue path.

The Commsion has not to date provided itself or EDBs with an robust analysis of the overall effect of this mix of incentives it is providing. The problem is illustrated by the Commission discussion of aligning the opex and capex incentive rates (ie the proportion of cost savings EDB retain). After noting its previous concern that "*a higher retention rate on capital expenditure [than 15%] may result in the incentive to inefficiently defer or reduce capital expenditure being stronger than the incentives to maintain quality*" the Commission now argues "*we are considering increasing the revenue at risk for the quality incentive scheme for DPP3. This may mitigate the risk that a higher capital expenditure retention factor can result in the incentive to inefficiently reduce or defer capital expenditure being stronger than the incentives to maintain quality*".

In order for the incentives provided to be effective, decisions regarding financial incentives to over achieve the quality standards and the incentive rate for economising on capex need to to be based on a thorough analysis of their interaction.

Hopefully, the Commssion will be able to engage an expert consultant to work with the Commission's economic team to provide such an analysis during the DPP3 reset process.

Conclusion

The primary purpose of this submission is to assist the Commission from a non-partisan perspective. The secondary purpose is to encourage EDBs' Boards, managements, shareholders, the ENA, the ERANZ and retailers to explain to the public the Quality-Price trade-offs that are involved in deciding on quality standards for the electricity distribution networks, including the implications of increase risk of economic stranding of assets.

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